



# What Happens to Recycled Paper?

*A Fact Sheet from the Solid Waste & Financial Assistance Program*

## **In General**

Paper that is recycled must be baled up and transported to a mill that can turn it back into pulp. Your recycling center or curbside collection company will be paid for these bales by a broker or a mill. The price paid will depend on the quality of the paper in the bales. Your help in keeping different kinds of paper sorted means the recyclers can get the best price, and stay in business collecting more paper from you.

Generally, repulping waste paper is accomplished by mixing it with water in a large tank and mechanically beating it. Some sort of pulp decontaminating procedures would also be employed, such as magnetism, centrifugal force, and simple screening. Contaminants removed could be foreign items such as staples, and additives to the initial paper product such as water-soluble adhesives or clay coatings. Ink, especially from newspaper, may also have to be removed from the pulp by repeated rinsing or flotation processes. Other discoloration is sometimes removed by bleaching the pulp.

Every time paper is recycled, the wood fibers from which it is made are torn into shorter lengths. Therefore, fibers in recycled paper pulp are generally shorter than fiber in "virgin" pulp made directly from trees. Much of the extremely short fiber in recycled pulp is rinsed out prior to paper production. The shorter the fibers that remain, the less strength the paper will have. This fact puts a limit on the number of times paper can be successfully recycled. Generally, to use the pulp again for the same product from which it was derived, some percentage of virgin pulp would have to be added to the batch.

The re-pulping, de-inking, and bleaching processes all require the use of a lot of water. After its part in the process, this water must itself go through some kind of treatment process before it can re-enter the environment. Waste inks, bleaching agents, even the sludge of fiber fragments must all be removed or neutralized. In many mills, the waste water is filtered and/or treated for re-use in the mill. Material removed from this water can present a solid waste disposal problem.

## **About Specific Grades of Paper**

Depending on its initial quality and the quality required of its eventual re-use, the paper you recycle may go through differing processes. Used high-grade paper (such as computer printout, copy paper, or stationery) is often recycled into more of the same, or into tissue products. These uses require that it be kept separate from other sorts of paper. Once it is pulped, it may have to be de-inked, then perhaps mixed with virgin pulp, and

finally bleached in some fashion. In other uses, such as a constituent of lower grade products made of mixed waste paper, bleaching or de-inking may not be required.

One fairly simple re-use for mixed paper pulp is to mold it into various shapes, such as egg cartons. With additional processing, mixed waste paper pulp can be turned into paperboard for consumer goods packaging. This can be unbleached, such as you might find with shoe or cereal boxes (gray inside), or bleached, such as in frozen food boxes (white inside). Often, the two are combined in a layered paperboard which is folded white-side out in the finished package.

Corrugated cardboard boxes and brown paper grocery bags are made with a high-grade fiber to give them the strength required for their use. The pulp from these recycled products can be mixed with some virgin pulp to make new bags and boxes of adequate strength, or it can be turned to the same uses as mixed waste paper pulp. In either case, it does not generally need to be bleached.

When intended for the production of new newsprint, repulped newspapers must be de-inked. The ink removed may contain substances best kept out of the environment, which is an additional task faced in this process.

More and more, printers are using more environmentally friendly inks and paper manufacturers are using less toxic bleaching agents. This is resulting in reduced waste water treatment problems at mills that recycle paper. As the demand for recycled paper increases, even more improvements to the recycling process can be expected.

#### **For More Information, or Special Accommodation Needs**

---

Contact: Solid Waste & Financial Assistance Program  
Department of Ecology  
P. O. Box 47600  
Olympia, WA 98504-7600  
**1-800-RECYCLE**

If you have special accommodation needs, contact **1-800-RECYCLE (VOICE)** or **(360) 407-6006 (TDD)**.

Ecology is an Equal Opportunity and Affirmative Action employer.

**June 1996**

---